

### Registration of K/Z Mapping Population of Rice

In 2004, the ARS-USDA released mapping population K/Z (Reg. no. MP-1, NSL 428187) of 353  $F_{10-11}$  generation recombinant inbred lines of the japonica-indica cross, Kaybonnet *lpa1-1* Genetic Stocks-Oryza (GSOR 100354) (PI 634572 MAP) and Zhe 733 (GSOR 100355) (PI 634573 MAP). The progeny lines are GSOR 100001 to 100353.

The mapping population was developed at Stuttgart, AR, from a cross between the low phytic acid mutant KBNT *lpa1-1* (Reg. no. GP-86, PI 632282) (Rutger et al., 2004) of the tropical japonica rice cultivar 'Kaybonnet' (Gravois et al., 1995) and the indica cultivar 'Zhe 733' (PI 629016) (Yan and Cai, 1991). Using the first letter of each parent line, these materials are designated as the K/Z mapping population. A subset of 137  $F_2$  lines from the population was used to map the *lpa1-1* mutation to a 2.2-cM interval on chromosome 2L (Larson et al., 2000). The full population was continued through the  $F_{10}$  or  $F_{11}$  generations to provide materials useful in additional genetic studies.

The cross between the tall, glabrous leaf and hull, tropical japonica mutant Kaybonnet *lpa1-1* and the semidwarf pubescent indica cultivar Zhe 733 was made at Stuttgart, AR, in 1997, and the  $F_1$  was grown in the greenhouse during the 1997–1998 winter. In an  $F_2$  generation of 845 plants grown in 1998, panicles were taken of 505 fertile or partially fertile plants. Upon threshing this number was reduced to 420 for convenience in fitting 1998–1999  $F_3$  winter nursery space. A single panicle from each  $F_3$  row was used to establish the  $F_4$  generation. Beginning in the  $F_5$  and continuing through the  $F_8$  or  $F_9$  generations, these materials were propagated in the greenhouse by planting a single seed from one plant of each line. The differences in generation number occurred because of variation in maturity, that is, early lines produced seed in less time than late lines. In the final greenhouse generation, a single panicle of each line was harvested for a panicle-to-row increase in the  $F_9$  or  $F_{10}$  generation in 2002, when a single panicle was harvested for a panicle-to-row increase in 2003. The total number of lines surviving and producing 50 or more grams of seed in 2003 was 353. The tropical japonica parent was of normal maturity for Arkansas and the indica parent was extremely early, resulting in moderate transgressive segregation for late maturity. Most of the reduction in numbers of survivors was due to reduced seed set typically observed between intersubspecific crosses.

Data were recorded in 2003 on days to heading (range 67–110 d), pubescence type [163 lines glabrous (gl), 190 pubescent (Gl)], height [184 lines semidwarf (sd1), 169 lines tall (Sd1)], and actual height (55–223 cm). For reference, the gla-

brous, tall tropical japonica parent headed in 91 d and was 104 cm tall, while the pubescent, semidwarf indica parent was 71 d and 90 cm. The above data on each recombinant line are accessible in GRIN ([www.ars-grin.gov](http://www.ars-grin.gov)) as GSOR 100001 to 100355.

Phytic acid data and microsatellite marker data on a subset of the mapping population have been used to fine map the low phytic acid mutation, *lpa1-1* (T. Tai, unpublished data, 2005).

The K/Z mapping population will be placed in the Genetic Stocks-Oryza (GSOR) collection at Stuttgart, AR. Limited amounts (~0.25 g or 10 seeds of each line) may be obtained by contacting the GSOR, Dale Bumpers National Rice Research Center, USDA-ARS, P.O. Box 1090, Stuttgart, AR 72160, or [gsor@grin-ars.gov](mailto:gsor@grin-ars.gov). Requests from outside the USA must be accompanied by an import permit. Seeds of the parents and the K/Z mapping population also will be deposited in the National Center for Genetic Resources Preservation, 1111 S Mason St., Ft. Collins, CO 80521. Seeds are available for research purposes, including development and commercialization of new cultivars. If these genetic stocks contribute to the advancement of rice genetics knowledge or development of new cultivars, it is requested that appropriate recognition be given to the source.

J.N. RUTGER\* AND T.H. TAI

### References

- Gravois, K.A., K.A.K. Moldenhauer, F.N. Lee, R.J. Norman, R.S. Helms, J.L. Bernhardt, B.R. Wells, R.H. Dilday, P.C. Rohman, and M.M. Blocker. 1995. Registration of 'Kaybonnet' rice. *Crop Sci.* 35:587–588.
  - Larson, S.R., J.N. Rutger, K.A. Young, and V. Raboy. 2000. Isolation and genetic mapping of a non-lethal rice (*Oryza sativa* L.) low phytic acid 1 mutation. *Crop Sci.* 40:1397–1405.
  - Rutger, J.N., V. Raboy, K.A.K. Moldenhauer, R.J. Bryant, F.N. Lee, and J.W. Gibbons. 2004. Registration of KBNT *lpa1-1* low phytic acid germplasm of rice. *Crop Sci.* 44:363.
  - Yan, W., and G. Cai. 1991. Zhe 733, a high-yielding, blast (BL)-resistant, good quality indica rice for China. *Int. Rice Res. Newsl.* 16(6):14.
- USDA-ARS, Dale Bumpers National Rice Research Center, P.O. Box 1090, Stuttgart, AR 72160. Present address of T.H. Tai: USDA-ARS, Department of Agronomy and Range Science, University of California, Davis, CA 95616. Registration by CSSA. Accepted 30 April 2005. \*Corresponding author ([jnrutger@spa.ars.usda.gov](mailto:jnrutger@spa.ars.usda.gov)).

doi:10.2135/cropsci2005.0216

Published in *Crop Sci.* 45:2671–2672 (2005).

© Crop Science Society of America

677 S. Segoe Rd., Madison, WI 53711 USA